Caltrans

CALTRANS REGIONAL OPERATIONS FORUMS

Freight and Goods Movement

Freight and the 101 Corridor

- US 101 Central Coast Freight Strategy (completed April 2016)
- Vision and Goals
  - Support economic development in the region
  - Provide an efficient, reliable, well-maintained and safe goods movement facility along the US 101 Corridor
  - Reduce and mitigate environmental, social, health and economic impacts from goods movement operations

What are Freight Operations?

What are Freight Operations?

Last Mile

Long Haul

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Who Makes Decisions About Where Goods Move?

Decision Maker	Type of Decision	What Governs the Decisions?
Shipper Broker Consignee	• Pick-up location • Drop-off location • Mode(s) • Gateways and transfers (ports, terminals) • routes and corridors • schedule	• Total Logistics Costs • Regulatory Compliance $ $ $
Trucker	• Some routing decisions • Where to park	• Bottom line costs • Compliance (i.e. HOS) • Information on travel and routes

Why Do We Care About Freight?

Figure ES.1 Freight-Related Statistics, U.S. 101 Central Coast California

Freight and the US 101

- What are some of the biggest issues for freight and the US 101 corridor?
- How are key outcomes from the Freight Strategy being implemented?
- Is there continued momentum to address freight issues? If so, what?

Central Coast Priority Freight-Related Projects

- Interchange and intersection improvements (8)
- Capacity expansion/new roads (7)
- Rail focused projects – realignment and upgrades (5)
- Operational improvements (4)
  - Ramp modifications and ramp meters
  - Climbing lanes
  - Others?
- Transload

What Can Agencies Do to Improve Freight Operations?

- Identify and mitigate operations issues
  - Recurring bottlenecks
  - Maintain fluidity
  - Safety hotspots
- Disseminate / integrate information
  - Road conditions
  - Truck parking
  - Truck routing
- Collaborate with the private sector

Florida DOT

Truck Bottlenecks
Potential Mitigating Actions

Correct Capacity Deficiencies

- Low capacity left exits
- More through lanes

Shift or Reduce Facility Demand

- Managed lanes
- Multimodal investments

Implement Aggressive Incident Management

- Traveler information systems
- Queue warning system
- Quick clearance

Deploy Portfolio Approaches

- Multimodal strategies (combination of strategies)

Freight Fluidity
Maintaining Reliable Access

- Traffic operations works with freight planners & carriers to:
  - Identify the truck routes
  - Identify the major generators (e.g. airports, seaports, distribution centers)
  - Assess performance
- Implement measures to improve performance (e.g. signal timing, traveler information, etc.)

Florida DOT

Incident Management
Aggressive Quick Clearance

- Contracts with heavy duty wreckers
  - Access to specialized equipment (e.g. air cushions for overturned trucks)
- Monetary incentives for rapid response
  - Georgia TRIP (Towing and Recovery Incentive Program)
  - Florida RISC (Rapid Incident Scene Clearance)
- Quick clearance laws and procedures

Incident Management

Florida Rapid Incident Scene Clearance (RISC)

- Started on Florida Turnpike in 2004, since expanded throughout Florida and to several states
- RISC Contractor operating parameters
  a) 60 minutes to arrive at scene with required equipment
  b) 90 minutes to clear the travel lanes and clear debris
- Contractor received $2,500 bonus if a) and b) accomplished
- After 90 minutes, the contractor loses the incentive
- After 180 minutes, the contractor may be assessed liquidated damages

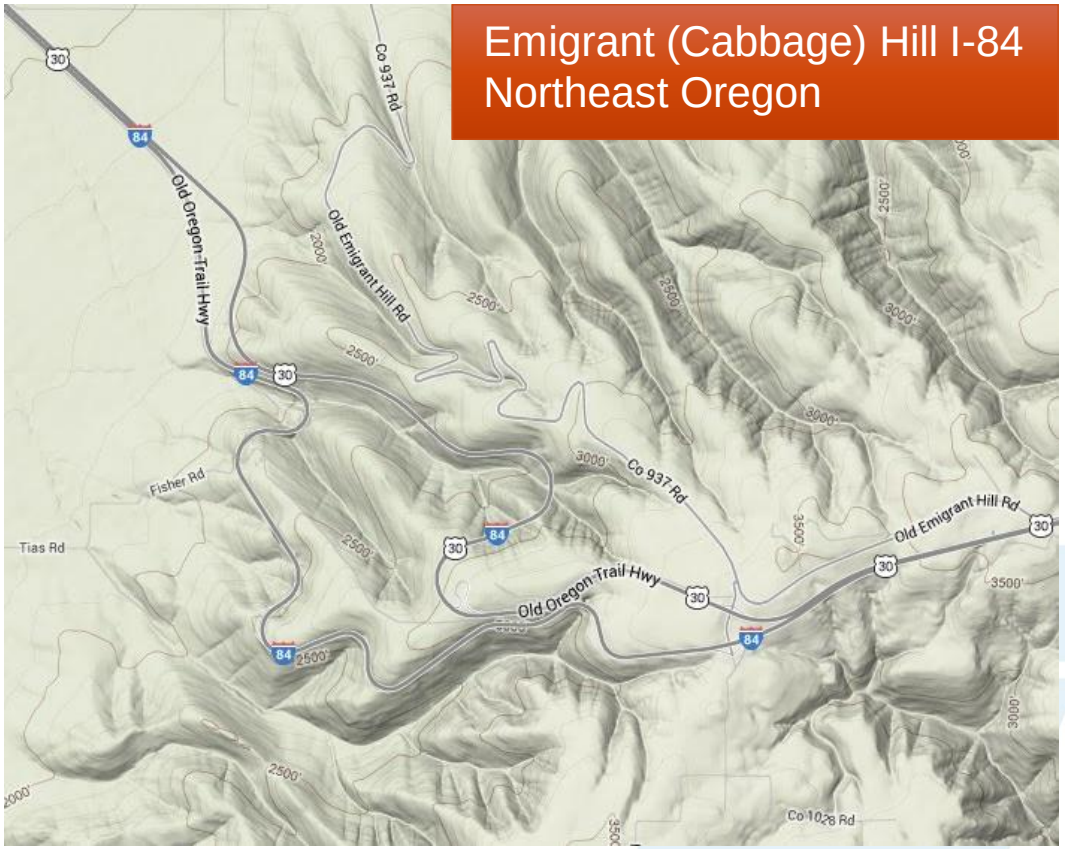
Incident Management
Oversize / Overweight

- Contingency planning for OS/OW
  - Knowledge of OS/OW routes and shipment types
  - Best practices for clearance
  - Detour planning
  - Notification procedures
- Contracts with heavy duty wreckers
  - Access to specialized equipment (e.g. cranes)

Oregon DOT

Safety Hotspots
Oregon Downhill Speed Information System

- 6% Grade
- 2,000’ elevation change (9 miles)
- Double hairpin turn
- 51 truck accidents from 2003 to 2007 (31 truck at fault)
- 78% are out of state motor carriers



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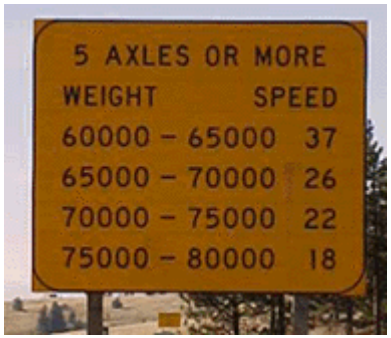
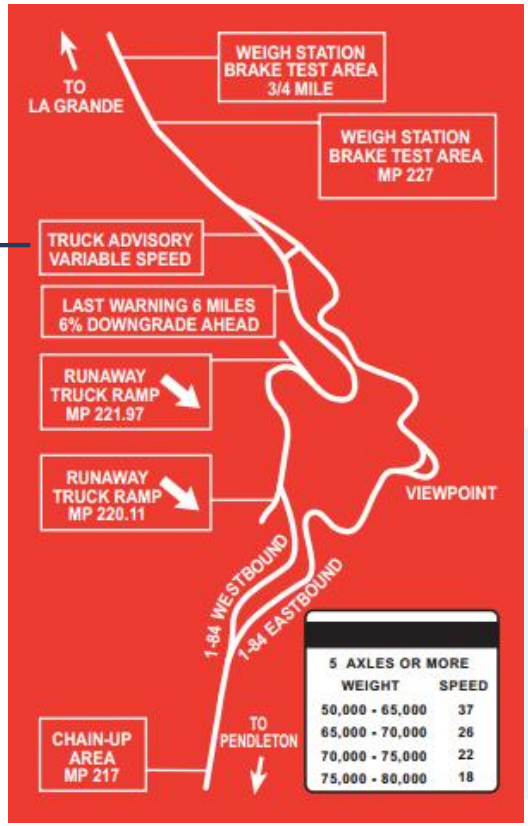
Safety Hotspots
Oregon Downhill Speed Information System

CABBAGE HILL AWARENESS PROJECT I-84





- Upstream WIM relates weight to transponder in truck to issue advisory
- Public information campaign
- 13 percent reduction in crashes

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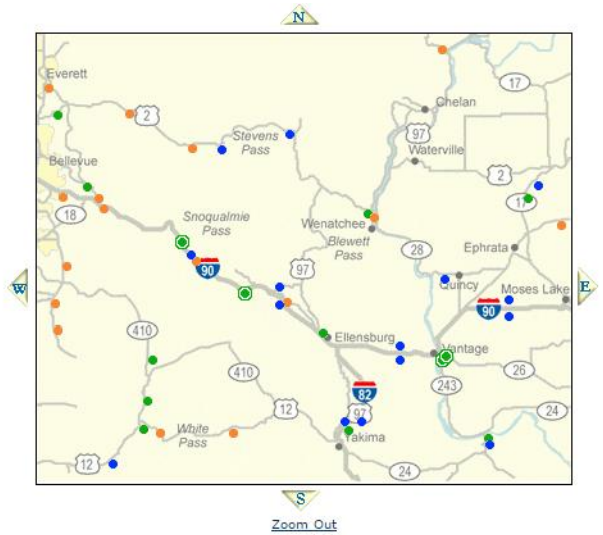
Keeping Freight Informed
WSDOT Real Time Restrictions



Zoom Out

Zoom in on the map to view more routes.

If you do not see the route you are looking for, no problems have been reported.

Interstate:	I-90
US Highways:	US 2 US 12
State Highways:	SR 9 SR 10 SR 17 SR 28 SR 123 SR 153 SR 162 SR 165 SR 169 SR 202 SR 203 SR 243 SR 285 SR 410 SR 522 SR 821

View all routes

- Recent bridge restrictions added in the last 10 days
- Bridge restriction
- Recent road restrictions added in the last 10 days
- Road restriction
- Rest area

Oversize/Overweight Restrictions

Showing 8 of 38 Restrictions — Printer Friendly

I-90, MP: 78 to 88, Direction: Both

New **Date Updated: 5/8/2015 11:04 AM**
Original Date: 5/8/2015 12:00 AM
Effective Monday, May 11th-Thursday, May 14th on I-90 mileposts 78-88 both directions. Westbound: No loads over 12' wide Monday, May 11 from 7am to 4pm. Eastbound: No loads over 12' wide, Tuesday, May 12 through Thursday, May 14, from 7am to 4pm each day.
More

I-90, MP: 56 to 64, Direction: E

New **Date Updated: 5/8/2015 10:47 AM**
Original Date: 5/8/2015 12:00 AM
CURRENT RESTRICTION (5/8 – 5/17) – Eastbound: No loads over 12' wide Friday and Saturday nights, May 8 and 9, and Monday through Friday nights, May 11 through May 15, from 8pm to 9am the following morning. Sunday, May 17 from 6:30am to 1:30pm: No loads over 16'wide. No restrictions westbound.
More

I-90, MP: 137, Direction: Both

New **Date Updated: 5/8/2015 8:43 AM**
Original Date: 5/11/2015 12:00 AM
I-90, Vantage Bridge, both directions - No loads over 14' wide from 6am-6pm each day, Monday, May 11 through Friday, May 15 and Monday, May 18 through Thursday, May 21.
More

I-90, MP: 137 to 138, Direction: E

New **Date Updated: 5/8/2015 8:38 AM**
Original Date: 5/26/2015 12:00 AM
ADVANCE RESTRICTION NOTICE – Eastbound Only – Beginning Tuesday, May 26 through November 1: No loads over 14' wide 24 hours per day, 7 days a week. Possible detour route available via I-82, I-182, and US 395.
More

I-90, MP: 136.22 to 138.41, Direction: Both

New **Date Updated: 5/6/2015 8:32 AM**
Original Date: 6/1/2015 12:00 AM
Effective June 1st-5th from 7:30am to 3:30pm daily. No loads over 10' wide allowed. WSDOT crews will be conducting a bridge inspection at this time.
More

WSDOT Commercial Vehicle Website

- Highlights most recent restrictions (bridge and road)

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Truck Parking
National Shortage

- Severe shortage of safe, legal parking options
  - Nearly half of trucker search an hour daily
- 2.2 million registered long-haul trucks in U.S.
- US DOT, state DOTs, and private sector working to improve information and allocation of spots

Truck Parking

State Initiatives: UDOT Truck Parking Program

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Truck Parking
Reservation Systems

TSPS™
TRUCK SMART PARKING SERVICES

ABOUT | FIND PARKING | CONTACT

Find Parking

LOCATION

ZIP or Address

AVAILABILITY

Show only lots with availability

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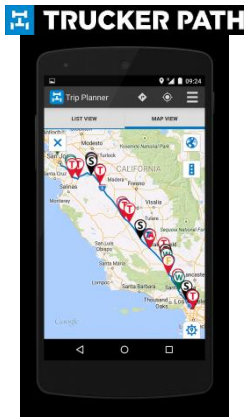
Truck Parking
Crowdsourced Information



- Trucker Path
  - Allows users to input truck parking availability at truck stops and other locations across U.S.
  - Detects when trucks are at a stop
  - 200,000 users
- Telogis Route Planning App
  - Crowd sources parking information
  - Integration of route planning / HOS
  - 140,000 users

Telogis®

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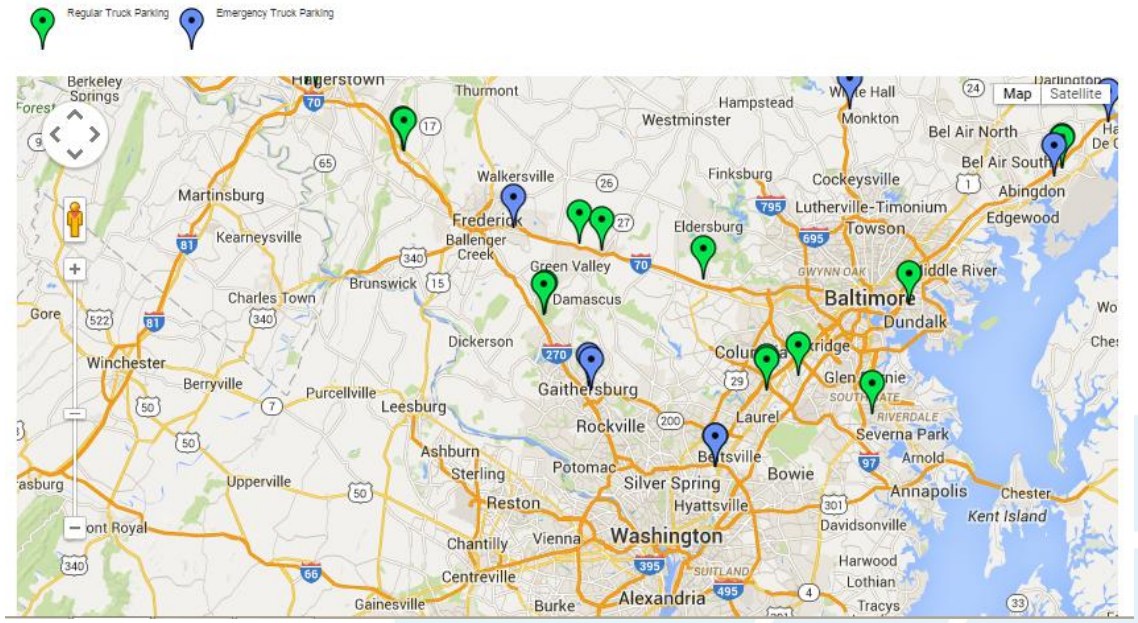
Truck Parking
Emergency Truck Parking

- Maryland State Highway Administration’
  - Allows for emergency truck parking in select Park and Ride lots if more than 6” of snow falls



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Truck Parking

Emergency Truck Parking: Regional Cooperation

- Weather events require regional cooperation
  - Truckers need to know where to part and wait during an extreme event (e.g. highway closed in Montana).
- I-80 Winter Operations Coalition
  - California and Nevada (and the other states of the I-80 Winter Weather Corridor) coordinate closures.
  - Nevada is working with municipalities to identify truck parking when roads are closed in California (Sierra Nevada passes).

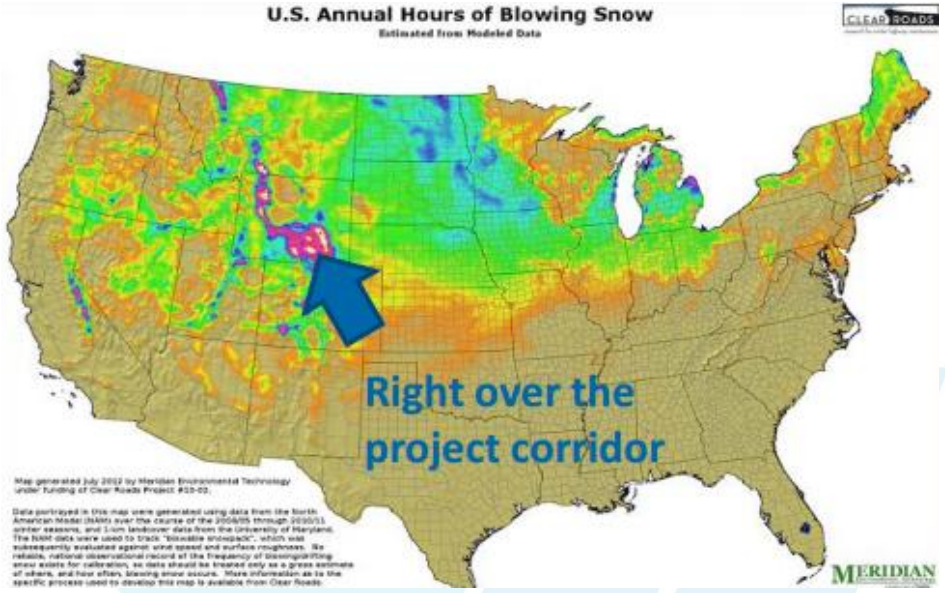
Connected Trucks

- U.S. DOT Safety Pilot Model Deployment includes trucks (Fall 2012 to Fall 2013)
- 3 trucks integrated with wireless crash warning devices
- Driver clinics with a cross section of commercial drivers. that will be part of separate truck driver clinics.
- Closed-course environment

SAFETYPILOT
CONNECTED VEHICLE TECHNOLOGY

Connected Trucks: USDOT CV Pilot Wave 1 Wyoming I-80

- Objective: Reduce the number of weather related incidents (including secondary incidents) in the corridor
- High elevation corridor
- Oct-May blowing snow and poor visibility
- 3,470 high wind crashes from 2002 to 2010



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Connected Trucks: USDOT CV Pilot Wave 1 Wyoming I-80

- Vehicle to infrastructure (V2I) and vehicle to vehicle (V2V) connectivity to connect:
  - snow plows
  - trucks
  - fleet management centers
  - roadside equipment

- Provide real-time advisories both to trucks and personal vehicles en-route as well before entering the I-80 corridor.
- Applications will support roadside alerts, parking notifications, dynamic routing guidance, weather responsive variable speeds

Autonomous Trucks
Nevada Pilot

- Daimler Freightliner “Inspiration” to test on Nevada state highway and interstates
- “Highway Pilot” intelligent system functions like auto pilot in an airplane
- The technology is ahead of the legal framework
  - How is accident liability established?
- Financially viable when a corridor of states allows the vehicle
  - The potential for platooning is a huge incentive

Freight Advanced Traveler Information System (FRATIS)

1. Freight Real-Time Traveler Information with Performance Measures 	• Provides traveler information to freight operators and drivers:
	  • real-time travel estimates with route guidance to freight facilities,
	  • basic incident alert, road closure and work zone information.
	  • Could include oversize/overweight route restrictions with associated time periods
	  • tailored weather information,
	  • intermodal connection information,
	  • container disposition / shipment schedule updates.
	• Uses archived information for performance monitoring.

2. Freight Dynamic Route Guidance 	• Determine, in real-time, and potentially while a truck is already on a route, the best route (or re-routing, if applicable) between freight facilities for each carrier that subscribes to the service.
3. Drayage Optimization 	• Coordinate load movements between freight facilities. Trucks assigned time windows for pickup or drop-off Web-based forum for load matching to reduce empty or unproductive moves

FRATIS
Freight Advanced Traveler Information System

Pilot Region	Objectives
Los Angeles-Gateway	Addressing dynamic travel planning around the marine terminals and queues to move cargo out of the ports more efficiently with the use of an optimization algorithm
Dallas-Fort Worth	Optimize drayage opportunities in coordination with rail and local truck drayage companies.
South Florida	Similar focus as the other two sites, but includes emergency response capability to FRATIS that would integrate FRATIS functionality into Emergency Operations Center activity during an emergency such as a hurricane.

- Awaiting results from pilots
- Eventual OEM and private sector applications

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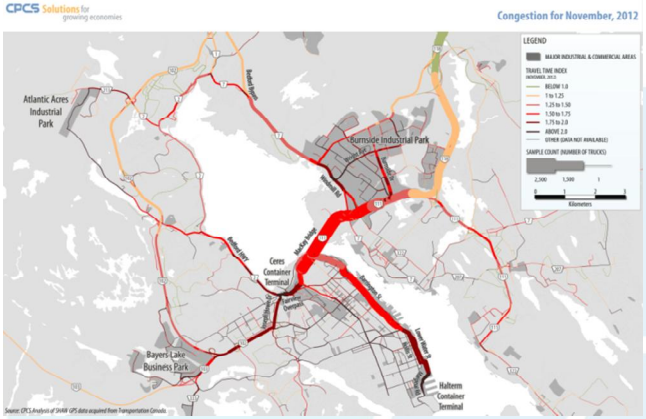
The Next Big Thing
Big Data in Freight Operations

- Private sector is just getting started
  - 8% of shippers and 5% of 3PLs surveyed have implemented “Big Data” supply chain initiatives*
- Public sector utilizing big data (truck GPS) for performance, exploring other applications (e.g. regional operations).

> “The major benefits from data come from answering unanticipated questions.”
> - Peter Kivestu, Teradata



*From Jim Taylor “Fusing Big Data and the Supply Chain: The Future is NOW.” *Inbound Logistics April 2014.)* Source: 2014 18th Annual Third-Party Logistics Study produced by Dr. C. John Langley and Capgemini Consulting.

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Stakeholder Outreach

How to integrate freight considerations into operations?

- MAP-21 Freight Advisory Groups (recommended)
  - Membership includes carriers, shippers, logistics providers
  - Involve ITS / operations staff
- Focus other efforts on matching the issue to the audience
- Is there a freight group here for the 101?

Virginia Freight Transportation Technical Advisory Committee (VFTTC)

Stakeholder Outreach
Goods Movement Task Force

- Goods Movement Task Force meets quarterly
  - Inform members of upcoming topics and high-interest issues
  - Make it the “place to be” for networking and information
  - Formal process to shape the planning and programming process (e.g. freight projects in the regional plan)

Public Agency Role
How can you facilitate goods movement?

- Know what truckers and shippers think about operations.
- Know the key industries of your state and corridor and their needs (and supply chains).
- Understand what kinds of information freight needs.
- Maintaining momentum following the freight plan.

Questions and Discussion